



ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY

**Environment, Health, & Safety
Training Program**

EHS 432 ~ Radiation Protection -Lab Safety

Course Syllabus

Subject Category: Radiation Protection
Course Length: 4.5 hour
Delivery Mode: class
Schedule: Monthly or by special request
Location/Time: Bldg. 51-201, 8am-12pm

Course Prerequisite: EHS 400
Medical Approval: No

Course Purpose: This course is designed to provide new employees with the radiation control measures employed at LBNL, including the various programs used to authorized radiological work, and to enable them to work safely with radiation sources and radioactive materials at Berkeley Lab. The advanced concepts presented in this course include, ALARA, contamination control, radiation monitoring and documentation, proper use of personnel protective equipment, spill response, and proper posting and labeling. This course is mandatory prior to commencing work with unsealed radioactive material or sealed radioactive sources. Other radiation protection courses may also be required and will be specified in the RWA, SSA or RWP covering the work.

Course Objectives: EH&S 432 covers the following topics:

- Method of procurement of sealed sources at LBNL.
- Likely sources of radioactive contamination.
- Methods used to control radioactive contamination.
- Purpose of articles of personal protective clothing.
- Good practices to prevent radioactive contamination.
- Normal methods of decontamination.
- Performance check of a portable survey meter.
- The following terms:
 - Sealed Radioactive Source
 - Accountable Sealed Source
 - Exempt Sealed Source
 - Sealed Source Custodian
 - Sealed Source User
 - Source Integrity Test (Leak Test)
- Responsibilities of a sealed Source Custodian.
- Actions required to transfer a sealed source outside LBNL.
- Proper sealed source labeling and storage practices at LBNL.
- Criteria used for removal of a source from inventory based on removable activity.
- Preferred action to take when a source is discovered to be "missing".
- ALARA principles
- LBNL policy on procurement, storage, and use of sealed radioactive sources.

Course Instructional Materials:

- LCD Projector
- VCR for video "Working Safely with Radiation"
- Paper flip chart and white board
- Geiger Counter Beta-Gamma Survey Meter
- Training mats containing sealed sources
- Radiation safety postings and signs

Instructors:

Robert Fairchild (x2278)
Christine Donahue (x7736)

Training Compliance Requirements: This course is designed to meet, in part, the requirements of 10CFR835 section 901 (b), which states that each individual shall demonstrate knowledge of radiation safety topics:

1. before being permitted unescorted access to radiological areas, and
2. before performing unescorted assignments as a radiological worker.

Other radiation protection courses may be required and will be specified in the RWA, SSA or RWP covering work.

Course Handouts:

- Student Manual
- User Survey Map

Participant Evaluation: Written evaluations regarding the effectiveness of the trainer, the training, and the visual aids.

Written Exam: Yes. Students must score at least 80% on a multiple choice exam to pass the course.

Practical Exam: Yes. Students must demonstrate proper survey techniques and survey documentation.

Retraining/Recertification: Every two years. Documented as EH&S 401.

WEB Resource: See LBNL EH&S Training Program web page @ <http://www.lbl.gov/ehs/html/training.htm>.